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## HEALTH ACTIVITIES IN COLLEGES AND UNIVERSITIES

A DISCUSSION OF THE AIMS, ORGANIZATION,  
ACTIVITIES, AND PROBLEMS OF A STUDENTS'  
HEALTH SERVICE

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## HEALTH ACTIVITIES IN COLLEGES AND UNIVERSITIES.

### A DISCUSSION OF THE AIMS, ORGANIZATION, ACTIVITIES, AND PROBLEMS OF A STUDENTS' HEALTH SERVICE.<sup>1</sup>

By JOHN SUNDWALL, M. D., Ph. D., University of Minnesota.

#### INTRODUCTION.

A very significant trend in education during the past few years is shown in the recognition that health is fundamental to sound intellectual development and that the rigid regulation of all things pertaining to the hygiene of students is indispensable. Generally speaking, there is serious economic and academic loss year after year in our schools, colleges, and universities, due to lassitude, indisposition, illness, and epidemics among students, all more or less preventable.

For many years universities have inquired into and passed regulations respecting the conduct and habits of students with a view to maintaining and increasing mental efficiency. The university has said to the student: "You must not dissipate. You must not indulge in frequent and late hours of social activities. You must not do this or that which interferes with your studies." No serious or worthy objections have been voiced against the assumption by the university of the authority to enforce such regulations.

With a realization of the importance of health and the advance in preventive medicine, the universities see that by special measures for safeguarding the health of their students one of the chief roots of academic loss and inefficiency is reached. Who can justly question, then, the authority of a university to make provisions for service of this kind?

With a view of providing an agency to deal with the problem of students' health, many colleges and universities have established, or anticipate establishing, a students' health service. In order to support such an activity, the student is required to pay an annual health fee. Naturally there has been much misunderstanding, and some criticism has been directed toward the university as a result of this fee. Physicians have asked: "Why should I be burdened with

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<sup>1</sup> Reprint from the Public Health Reports, vol. 34, No. 45, pp. 2489-2518.

this fee? Can I not treat my own children?" Again, certain religious sects have honestly objected to the inauguration of a students' health service on the grounds of unbelief in certain medical treatment.

The contraventions to this new move on the part of the colleges and universities would perhaps be justifiable if the health services established were concerned solely with medical treatment. Let us suspend judgment until the aims of a students' health service have been considered.

At the outset of this discussion let me impress the reader with this fact: The problem of the university respecting health regulations is not one of medical philanthropy but rather one of broad economy. A health service should not be established as a form of contract practice, nor should it be considered a "health insurance" as the term is usually understood. On the other hand, a university health service should be primarily concerned with the prevention of disease and with maintaining a high degree of health among the students.

#### AIMS OF A STUDENTS' HEALTH SERVICE.

1. A university health service should be as much concerned with the physical welfare of the sound student as it is with that of the ill or the subnormal. In this respect it differs from other health agencies. Instead of concentrating all its activities on the 1 to 5 per cent who are afflicted, it should be actively interested as well in the 95 to 99 per cent who do not feel the necessity of consulting a physician.

For two fundamental reasons every self-deemed sound student should be given a complete physical examination at least once each year: For the early detection of unrecognized disorders that may prove serious in time if allowed to continue; and to help in impressing every student with the importance of maintaining active, vigorous, positive health.

Any one who is informed regarding the findings of the examining boards in the physical examinations for entrance into the Army, or with the findings of those who examine entering students at universities where health services have been established, realizes the value of at least one physical examination a year of every student, whether he is apparently physically sound or not. Even when the findings are negative, the assurance that he is physically sound is of value. This is especially true in many cases in which the students concerned have been mistakenly led to think they are not sound physically. And in cases where unrecognized or incipient disorders do exist, by the early detection of those disorders and proper advice or treatment much good can be done. Also there is real need of

bringing every student to a realization of the value of keeping up a positive, active normality; and provision must be made whereby this can be done.

In its interests and activities in behalf of the physical welfare of all students, the university health service is inextricably interwoven with the department of physical education.<sup>1</sup> Not only should the health service insist on daily exercise on the part of all students in the university, and the faculty, as a direct health measure, but it should emphasize as well the importance of a properly developed active body—the Greek ideal.

The usual caricature of the average student—a stoop-shouldered, hollow-chested, horn-bespectacled, anthropoid—has altogether too much truth in it. The movements of the average student are lumbering and awkward, the very antithesis of alertness and determination. Further, the academic training of the university tends to make one reflective and inactive; and a more or less permanent habit of reflection and dreaming is often acquired at the expense of “doing.”

Faulty posture, slovenly lazy motion, and inactivity are decidedly harmful physical habits. One of the chief concerns of the health service should be to help to stamp indelibly upon all students in the university a determination to possess a sound, properly developed, active body, and a prepossessing personality. The college student should possess all those physical characteristics which stand for harmonious and healthful development, correct and assertive poise, dexterous and efficient motion. “He walks like a soldier,” is decidedly complimentary. Why not develop a university type of physique? Let the highest of praise of physique and carriage be: “He has the bearing of a collegian.”

From the foregoing discussion it is readily seen that a university health service is, indeed, very much concerned with the physically sound students—both in the attainment of positive health and in the provision for assuring continuance of this health during the academic as well as post-academic life.

Other and related activities of a university health service are:

2. Protection of the sound student from the communicable diseases generally brought to the university.
3. Detection, isolation, and provision for the treatment and care of all students who are victims of communicable diseases.
4. Advice to, and treatment, and, when necessary, provision for the care of all students who are ill.
5. Reclamation: Early detection, and correction so far as possible, of beginning bodily disorders such as the degenerative diseases.

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<sup>1</sup> The interrelation of the students' health service and physical education is discussed in “School and Society.” Vol. VIII, Nos. 201, 202, 203, 1918.

6. Reconstruction: Correction, so far as possible—by advice regarding proper exercise and right living, and by treatment when advisable—of defects in all subnormals.

(The foregoing objects are to be reached through the personal division of a university health service.)

7. The students' environment must be made as hygienic as possible. Hence, the division of sanitation must concern itself with the sanitary conditions both on and off the campus. Campus buildings, rooming houses, and boarding houses must be inspected and regulated so far as possible.

8. Finally, every student should be made familiar with the elements of personal and public hygiene. In many respects education is a most important branch of the work of a health service.

### ORGANIZATION AND ACTIVITIES.

The various activities of a health service are closely interrelated. They can, however, be divided into three groups or divisions: I. Personal attention; II. Sanitation; III. Education.

#### I. Personal Division.

*Physical examinations.*—It should be the aim of the students' health service to have on file a complete confidential physical record of every student in the university. It should urge the need of a requirement that every student be given a physical examination at the beginning of each school year.

The value of these physical examinations may be stated as follows:

(a) The determination of the physical condition of each student so that proper supervision of his activities will be possible in building up, when necessary, and in maintaining a healthy, harmoniously developed, active physique.

(b) As already suggested, great good often comes from these physical examinations, in the assurance to a student that he is physically sound. This has been not only our own experience, but also the experience of others. Let me quote from a Harvard report:

But the greatest value of this examination to my mind, and with this I have been strongly impressed, is not so much the detection of existing disease but the assurance of a larger group of boys who think that they have disease that they are really sound. Curiously enough, there were more boys who thought they had a serious organic defect, usually of the heart, and were found entirely sound, than boys who thought they were well and had disease. In many instances boys were worrying over ailments that were purely fanciful; but this worry was having a considerable effect upon their general condition. The importance of the compulsory physical examination seems to be as much the correction of erroneous ideas concerning disease in the healthy as the detection of disease.

Unfortunately, many people are started out in life on the wrong track. They are led to think that they are weaklings and are physically unable to do many things essential to happiness and success.



An amazingly large number of people who are organically sound live a long life of limited usefulness or utter uselessness, and prove to be serious economic burdens to both family and society, simply because of the fatuous sympathy of overindulgent parents and an early attitude of servility on the part of the family and friends.

Again many students have fallen into the clutches of quacks and mountebanks. The sensational advertising of these charlatans, describing certain normal physiological processes as being abnormal, may have fallen into their hands and morbidly influenced them. As a consequence, many students entering the university are the victims of either pernicious early advice and care or of quackery. Naturally there are associated with these conditions various mental disturbances—neuroses and psychoses. The student under such conditions has become, as a rule, introspective and melancholy. No greater delight is afforded the service than to assure one of these victims that he is physically sound. This assurance must be followed by frequent periods of advice and mental therapeutics. Thus mental hygiene must play an important rôle in all university health services.

(c) Another value of physical examination is that the early detection and isolation of those having communicable diseases protects the healthy students from the many grave communicable diseases that annually creep into the university.

We are beginning to realize more and more that a knowledge of the physical conditions and the regulation of the personal hygiene of the individuals making up a unit or closely associated group are fundamental in all community health activities. It is the custom nowadays for a municipality or State to pass drastic laws regulating garbage disposal, the location of corrals and pig styes, the cleanliness of slaughterhouses, and the distribution of milk and foodstuffs. Commendable as these laws are, they do not strike at one of the chief dangers. While such laws may be rigidly enforced, a typhoid carrier, a victim of tuberculosis, or one who has a mild case of any one of the serious communicable diseases, may sow these diseases broadcast. One tuberculous person or typhoid carrier in a community may do as much harm to the individuals therein as lax enforcement or even nonrecognition of the laws pertaining to sanitation. It is not difficult to see the incongruousness of a regulation which requires the screening of foodstuffs and at the same time makes no provisions whatsoever for determining whether the person who prepares the food or distributes it is a typhoid carrier.

An example of the value of physical examination for the purpose of isolating and treating germ carriers is seen in the recent Students Army Training Corps examinations at the University of Minnesota. Of the young men who stood in line for physical examination, one was in the eruptive stages of smallpox, two had measles, one had

scarlet fever, and several had tuberculosis—one of whom was in such an advanced stage of the disease that he died several days later. Also other communicable diseases were detected. Let us suppose that these examinations had not been made, as is the civilian custom, and that the infected ones had been allowed to mingle with the other students in their various activities, both in classrooms and barracks. The inevitable result would have been various epidemics with their accompaniments of death, sorrow, and an inestimable academic and economic loss to the university and country.

Probably 75 per cent of all illness among students is more or less communicable in nature. Sound students only too frequently contract fatal diseases through innocent association with germ carriers and distributors. One student with the so-called "chronic cough" may infect numerous individuals with tuberculosis. Carriers of diphtheria, typhoid, or even meningitis, may sit in classrooms and share rooms with healthy students.

Venereal diseases must be completely eradicated.

So important are physical examinations with a view of detecting and isolating carriers of communicable diseases that all students, all members of the faculty, and employees who come in contact with students, should be examined annually at the beginning of the school year.

It will be readily seen from the foregoing discussion that to provide for the physical welfare and proper development of the sound student and to protect him from infection by others is a most important part of the work of a university health service. Is not this service alone worth the fee?

(d) Another important value of frequent thorough physical examination is in the early detection of beginning degenerative diseases, and the determination and correction of physical defects, both of which contribute to subnormality.

It is well known that the so-called degenerative diseases are on the increase in the United States. Various life-saving agencies have found in their investigations that as the mid-period of life is approached a sound, normal physique is a rare finding.

One-third of two and a half millions of our young men—young men in the very prime of American manhood—failed to pass the physical tests for military fitness under the selective-draft law during the first draft in 1917-18.

In the recent Students Army Training Corps examination at the University of Minnesota, of 3,403 young men—ages chiefly 18, 19, and 20—it was found that about 10 per cent were subnormal and consequently were either accepted for limited service or placed in Group B. Disorders of nutrition, circulatory abnormalities, valve deficiencies, defective vision, bad teeth, infected tonsils, hernias,

abnormalities of posture, flat feet, were among the common causes of rejection. Many had albumin in urine, some had sugar.

Many of these defects are correctible. Others, again, can be greatly improved by treatment and advice. The retrogressive changes can usually be arrested. Making provisions for reconstruction and reclamation in such cases should be an important activity of the personal division of a university health service.

*Vaccinations and inoculations.*—Prophylactic vaccinations against smallpox and inoculations against typhoid fever, diphtheria, and pneumonia should be provided for.

*Treatment and care of ill students.*—Proper care must be taken of the carrier of, and of those who have contracted, communicable diseases. As soon as they are detected, adequate isolation, medical attention, and care must be provided for them. All students who are ill or in need of medical advice must be given the necessary attention.

Dispensary cases: Arrangements should be made for physicians and nurses to give advice and treatment to ambulatory cases—dispensary patients. Medical advice, treatment of minor ailments, the necessary vaccinations and inoculations, the preparation of auto-genous vaccines, and the early detection of communicable diseases are among the invaluable services of the dispensary and associated laboratory.

Hospital cases: Frequently patients must be put to bed and cared for and in many instances isolated. Hence, the necessity of providing both a general hospital and an isolation hospital.

Laboratory: A laboratory well equipped with everything necessary for making the usual laboratory diagnosis is absolutely essential for an efficient health service. It is required in all physical examinations and in the early detection of many communicable diseases.

*University regulations necessary.*—In the efficient administration of a student's health service certain university regulations pertaining to examinations, hygiene, and sanitation are needed. The following regulations pertaining to the personal division of the work should be adopted and enforced in every university:

1. Students entering the university for the first time shall present themselves to the university health service for physical examination before matriculating. (These examinations should be coordinate with those given by the department of physical education.) Registration will be refused any student whose physical condition is regarded by the health service as dangerous to the health of the other students.

2. Members of the faculty entering the services of the university must obtain a certificate of health from the university health service.

3. All new employees of the university who prepare and serve food to the faculty or students must be approved by the university health service.

4. At any time during the school year upon request of the university health service any student, instructor, or employee must submit himself for physical examination.

5. Instructors or officers must report to the university health service any student or employee having or suspected of having any communicable disease (for example,

anyone with a chronic cough). Upon examination of such student or employee a report with recommendations will be furnished the dean or officer concerned.

6. An instructor or officer of the university suspected of having any communicable disease must, upon request of the president, dean, or official concerned, submit himself for examination at the offices of the university health service.

7. It is the duty of matrons, officers, or those in charge of fraternities, sororities, clubs, and rooming houses to report to the university health service students suspected of having any communicable disease and to report all illnesses which confine students to their rooms.

8. Students, instructors, and employees who come in close contact with students, who are absent from classes or from regular duties at the university on account of illness of a communicable nature, must, before renewal of attendance or duties, present to the dean or official concerned a permit from the university health service.

## II. Sanitation.

Environment plays an important rôle in disease causation and prevention. This is especially true of communicable diseases. It is most important to know and to regulate, so far as possible, the conditions under which students live, the food and water ingested, the air breathed, etc. The division of sanitation is therefore no minor part of a university health service, and ample provisions must be made for this branch of the work. The environment of the student, both on and off the campus, must be regulated and made as sanitary as possible.

1. *University buildings and campus.*—A sanitary survey of the campus and its buildings should be made. As a consequence much will be learned to aid in determining just what is needed in sanitation.

For each building on the campus utilized by students a voluntary health officer—some interested member of the faculty who occupies the particular building for the greater part of his time—may be appointed. It has been the writer's experience that these voluntary health officers for campus buildings are among the most valuable aids of a health service. The voluntary health officer will supervise in general the enforcement of the regulations pertaining to heat, ventilation, light, drinking water, and janitor service. Only too frequently does the janitor need both firm and intelligent supervision. Convenient boxes may be placed in each building to receive suggestions, complaints, and recommendations relative to the improvement of conditions.

For the buildings and campus as a whole, an inspector of sanitation should cooperate with the superintendent of buildings and grounds and the voluntary health officers for each building.

Meetings of the voluntary health officers should be called from time to time for the purpose of discussing problems of sanitation. The writer takes this opportunity to assure anyone concerned with the direction of a university health service that these meetings will be enthusiastically attended, and much good will be derived therefrom.

It is difficult to formulate general regulations for campus buildings. What is essential for the sanitary activities of an old building is not at all essential for the new. One building may be the sanitary conception (if there was one) of 50 years ago, while another, the latest building erected, may be constructed in accord with the most recent ideas of sanitation. Again, buildings are utilized for different purposes; hence different sanitary codes to fit each must be made.

#### REGULATIONS.

The following general regulations may be adopted pertaining to campus sanitation:

##### REGULATIONS FOR CAMPUS SANITATION.

1. Spitting on the walks of the campus, on the steps of a university building, or on the floors of the halls or rooms of any university building is hereby forbidden. Violation of this rule will render the offender liable to suspension from the university. It shall be the duty of all officers and employees of the university to report violations of this rule to the health service. (Spitting in public buildings violates the law in most States.)

2. Classrooms shall be swept and dusted after the class periods of the day are over. Sweeping compound or some other material for allaying dust shall be used in sweeping. All blackboards shall be thoroughly cleansed, unless otherwise indicated, at the close of the day. The crayon dust which accumulates on the catch board must be thoroughly removed at the close of each day's work.

3. Rooms must be thoroughly ventilated between class periods. (Electric fans may be used to accelerate this ventilation.)

4. Thermometers shall be provided for all classrooms and the temperature should be held constant at 68-70° F. Provisions should be made for increasing the humidity of rooms which are excessively dry.

5. The voluntary health officer of buildings which contain large assembly rooms must be notified beforehand of proposed meetings. He shall then make provisions for the best possible ventilation of assembly rooms during use.

6. All lockers used for clothing must be thoroughly cleaned and disinfected at least once each year, and always upon the transference from one student to another.

7. All clothing kept in lockers in gymnasium dressing rooms, or laboratories, must be kept in sanitary condition. Frequent inspection must be made by the officers of the department concerned.

8. A bacteriological examination of the water of swimming pools shall be made once each week, or as frequently as is deemed essential. The pools, when found to be unsafe, will not be open to students.

9. Lavatories and latrines shall be thoroughly cleansed daily and as often as is necessary. It shall be the duty of the voluntary health officer of each building to make frequent inspections of the toilet rooms and to insist that the janitor keep them in sanitary condition.

10. Specific sanitary regulations to meet the particular demands of certain buildings may be formulated and enforced by the director of the health service, the sanitary inspector, and the voluntary health officer.

11. The sanitary inspector shall cooperate with the superintendent of the buildings and grounds in keeping the grounds in the very best sanitary condition.

2. *Living conditions.*—Nothing can contribute more to the efficient control of the health of students than the provision of properly built,

properly equipped, and properly managed dormitories, dining rooms, and refectories, sufficient for all students. No doubt for most universities it would be inadvisable—perhaps out of the question—to require all students to live on the campus, especially in the case of students whose homes are nearby. However, such would be the ideal condition from the standpoint of efficient control of hygiene and sanitation.

Dormitories, erected with a view to affording the most hygienic living conditions in regard to heat, light, ventilation, furnishings, cleanliness, and drinking water, should be provided by every institution for all students not living at their homes. Where students live in such dormitories, all communicable diseases can be quickly controlled, and the closing of the institutions because of these diseases need never occur.

University owned and controlled dining rooms sufficient to accommodate all students in the university are most important. Wholesome, nourishing food is, of course, fundamentally essential to the health of the student. Everyone handling food should undergo a physical examination, including laboratory examination, and frequent inspection of the kitchen and dining rooms should be made. We are beginning to appreciate more than ever the value of proper nourishment in efficient mental and physical work.

Besides providing the student with wholesome and nourishing food, it would be well to teach him the amount and kinds of food essential, as measured in calories, vitamins, etc. Unquestionably, the so-called degenerative diseases, which statistics show are on the increase in the United States, are in a large measure due to ignorance of nutrition, and overeating. When a new automobile is purchased, the first chief concern of the owner is to determine the greatest number of miles that can be obtained from a gallon of gasoline. The amount of strength and energy to be derived therefrom should be an important matter in food ingestion. Certainly, if the importance of this matter were universally known and appreciated, high blood pressure, arteriosclerosis, chronic heart disturbances, Bright's disease, apoplexy, and other degenerative diseases would be decidedly diminished. Dining rooms on the campus, if operated under intelligent supervision, could do much in supplying this information. Each menu should give the caloric value of the foods served and succinct information relative to the kind and amount essential to proper nutrition. Let the university take the lead in this important matter by supplying the proper nutrition and teaching its relative values and needs.

We are not unmindful of the great rôle that dormitories and dining rooms play in the social life of the student. That these buildings solve many perplexing problems relative to the student's life in

general is obvious, and that they are of financial value has already been demonstrated in many institutions.

The establishment, then, of sufficient properly constructed dormitories and dining rooms wherein all foods and refreshments are prepared and served with scientific and sanitary care and according to the regulations laid down by the university health service is indispensable to the best living conditions. Under such conditions would not the gain in mental efficiency, physical well-being, and happiness of the students sufficiently compensate the State or other agencies for providing these facilities?

When students are compelled to live in rooms promiscuously provided by proprietors whose sole interest is the monthly rental the environment will often be unsatisfactory. The majority of students are compelled to live as cheaply as possible, and usually little attention is paid by the student to the sanitary conditions. Improper heating, insufficient ventilation, overcrowding, poor lighting, and uncleanness are the lamentable conditions existing in many rooming houses.

Likewise most dining rooms, lunch counters, and refectories are operated for gain, at the expense of proper service. The average student patronizes the cheaper ones. Too frequently the food is bad—spoiled or adulterated—or has not been prepared with a view to cleanliness. Typhoid and other germ carriers may serve the food and refreshments. Nutrition as a science is ignored.

With such adverse conditions it is no wonder that so much ill health exists among students and that outbreaks of communicable diseases occur frequently.

To correct these unfavorable conditions a sanitary survey should be made of the rooming and eating conditions of students, in so far as it is feasible. A sanitary inspector should inquire into and regulate, as far as possible, the conditions of heat, ventilation, lighting, cleanliness, equipment, and other things pertaining to the health of the students; and a report in each case should be kept on file at the office of the health service and at the housing bureau.

Particular conditions demand special regulations; but, in general, regulations similar to those given below should be adopted, to be met, as far as possible, by student rooming and boarding houses in order that they may be placed and kept on the approved list, the rating given each to depend upon the degree to which the requirements are met.

#### ROOMING HOUSE REGULATIONS.

1. *Heat*.—All study rooms should be heated to an even temperature of 68° or 70° when occupied. Pipes must carry fumes of gas stove, when used, out of the room. Effort should be made to maintain the necessary humidity.

2. *Ventilation*.—Provisions should be made for proper ventilation through sufficient windows and transoms. Rooms should have at least one window to outside.

3. *Light*.—Shaded table lights should be provided. Gas lights must be equipped with mantle and frosted globe.

4. *Cleanliness*.—Rooms should be cared for daily, and thoroughly cleaned at least once a week. Mattresses should be well aired at least once each week, and they should be thoroughly cleaned and sunned at least once each year and always upon change of tenants. Bathroom and fixtures should be kept in a neat and clean condition. Plumbing should be adequate.

5. *Equipment*.—A single bed for each student is recommended, and, if possible, one bed to each room unless sleeping porches are provided. Where two beds are in the same room, there should be at least 6 feet between them. All proprietors of rooming houses should be advised to supply single beds as soon as possible.

For each study room with two students the following equipment should be provided: One study table, two study and two easy chairs, dresser or chiffonier or both, closet or wardrobe for hanging clothes, mirror, carpet or rugs (preferably the latter), room thermometer, book shelf, and waste-paper basket. Provision should be made for storing trunks.

6. *Bathing facilities*.—Hot water should be furnished in lavatory daily, and for baths at least twice each week.

7. *Drinking water*.—Drinking water should be furnished from an approved source.

8. *Inspection*.—All rooms and houses used by fraternities, sororities, and clubs, and all student rooming and boarding houses should be open to the university health service for inspection and sanitary regulation.

9. *Complaints*.—Students should enter complaint to the health service when they feel that these regulations are not obeyed. The health service should immediately investigate with a view to enforcing the regulations.

#### INFORMATION RELATIVE TO RATING ROOMING HOUSES.

In the rating of rooms, a scale of 100 points might be used by the inspector and the following features should be taken into consideration:

*Heat (20 points)*.—Study rooms should be heated by hot water, steam, or hot air systems. While occupied they should be kept at a temperature of 68° to 70° F.

*Humidity (5 points)*.—The overdry atmosphere of rooms gives a sense of chilliness, owing to excessive evaporation of the moisture in the air, and favors irritation and infection of the respiratory mucous membrane. If a room at 68° is not warm enough for a healthy person, we may be sure that the air is too dry. Dr. E. P. Lyon found that during the heating season the evaporation of at least 15 buckets of water each 24 hours is required to supply the needed humidity for the ordinary house of 10,000 cubic feet capacity.

Water vapor can be increased to some extent by evaporating tanks in connection with hot-air systems, or by letting steam escape when a steam-heating system is used. Care must be taken, however, in the latter method, as it might prove harmful or even dangerous to the boiler. In individual rooms, water vapor can be increased to a certain degree by operating an electric fan placed over a vessel containing water, or by other devices, but none of these methods is ideal. Dr. Lyon's tests and results are of great value in this important matter. (See *Minnesota Medicine* V, December, 1918.)

*Ventilation (15 points)*.—At least 1,000 cubic feet per occupant; direct outside air; cross ventilation; transoms; windows; window ventilators.

*Lighting (15 points)*.—Direct outside light; window area at least 20 per cent of floor area; electric table lights shaded.

*Cleanliness (15 points)*.—Cleanliness of rooms and halls; condition of bedding and mattress; small rugs; use of vacuum cleaner; washable curtains and draperies; general appearance of house and surroundings.

*Furnishing (15 points)*.—Single beds; study table or desk; shaded electric table light; study chairs and easy chairs; adequate drawer and closet space.



*Bathroom (10 points).*—One bathroom for each five persons; plumbing; outside ventilation; cleanliness; hot water; same floor with bedrooms.

*Building (5 points).*—Upkeep; halls and stairways; fire protection—accessibility to exit, fire escape fourth floor and up—basement; exterior surroundings.

#### RULES FOR APPROVED BOARDING HOUSES.

1. All rooms where food is stored, prepared, or served to students must be kept thoroughly clean and screened against insects and animals.

2. No privy vault, open cesspool, hogpen, or chicken pen shall be permitted within 50 feet of any room used for storing, preparing, or serving food.

3. All garbage must be placed in covered sanitary receptacles and removed from premises at least three times a week.

4. All water used for cooking, washing dishes, or drinking must come from sources approved by the health service.

5. Dishes and cooking utensils must be kept in a clean and sanitary condition.

6. All persons preparing or serving food to students shall keep themselves in a neat and clean condition. Every facility must be maintained to assure the most rigid personal cleanliness.

7. All persons preparing or serving food to students shall obtain a certificate of health from the university health service.

8. The name of the dairy furnishing the milk used and served must be filed with the university health service.

#### ENFORCEMENT OF REGULATIONS.

(1) An inspection of rooming and boarding houses should be made by a representative of the university health service at least once each year or as often as is deemed necessary. These inspections should be made in conjunction with other agencies concerned.

(2) A list of the rooming and boarding houses approved by the university health service, together with ratings, should be on file at the university health service office and at the housing bureaus.

(3) All complaints by students respecting rooms and boarding houses should be followed up by immediate inspection on the part of the health service.

(4) The university health service should cooperate with the State board of health and the city health department in making the inspections and in enforcing the necessary regulations.

#### VOLUNTARY HEALTH OFFICERS FOR ROOMING AND BOARDING HOUSES.

The work of the health service may be very much facilitated by the appointment of voluntary health officers—one for each sorority, fraternity, dormitory, cooperative club, boarding house, and rooming house. This official may be the matron or any one interested, and may be appointed by the particular society concerned.

These officers should be made familiar with the regulations which concern them, and the closest cooperation should exist between them and the health service. Outbreaks which might lead to serious epidemics may be readily checked by intelligent and close vigilance on the part of these voluntary health officers.

### III. Education.

Dr. Eugene Lyman Fiske, in his analysis of the Army examinations of the one-third who failed to pass the physical tests, concludes that 60 per cent of those rejected owe their physical impairments to either ignorance or neglect. Both go hand in hand, for neglect of bodily organs and functions is the invariable accompaniment of ignorance relative to the causes of morbid processes and their grave results.

Appreciative and impelling enlightenment in regard to all things pertaining to human physical welfare is the first principle of an efficient university health service. As in every other human-betterment activity, the most genuine and far-reaching results are to be obtained through education. Education of the masses is a slow process, but it is sure to win. The average student knows little and cares less for the laws of health, and this is but a reflection of the usual American attitude toward hygiene.

#### 1. COURSES IN HYGIENE

No greater service can be rendered the college youth than requiring him to devote some time to the conscientious study of both personal and public hygiene. This is so universally accepted by academicians that it would be but useless repetition to present arguments in its behalf. That universities regard hygiene as an essential subject is demonstrated by a perusal of their catalogues. A criticism called forth by the average course in hygiene, however, is the half-heartedness or laxness with which it is conducted.

As a rule the courses given are in the nature of weekly lectures for perhaps one semester, for freshmen. Attendance is practically the only requirement for credit, and a freshman, as a rule, regards the course as a barricade which he must by some hook or crook surmount in order to receive the coveted degree. The class period is usually relegated to some late afternoon hour so that it will in no way interfere with the other courses. The classes are usually large, perhaps all freshmen boys in one section and girls in another, and the course is presented by overburdened and perhaps uninterested lecturers. No wonder then that hygiene has fallen into more or less ill repute and the teaching of it is too often regarded as comparatively unimportant. This is lamentably true notwithstanding that the knowledge which is concerned with laws of self-preservation is after all the first principle of education.

Hygiene should be placed on the same basis as other academic studies and should be required of all beginning students. At least five or six hours weekly for one semester or two quarters should be devoted to it, and credit toward degrees should be given for it. The course should be conducted as are other classes, by lectures, recitations,

assignments, demonstrations, experiments, and examinations. Numerous opportunities for concrete study of hygiene are afforded in the college or university environment, such as that offered by the sanitation of campus buildings and of students' lodging and boarding houses. Then there are various departments in the university which are more or less directly concerned with health matters, such as physiology; bacteriology and pathology; sanitary engineering—water supply and sewage disposal; and architecture—building construction, both private and public, with special reference to light, heat, humidity, ventilation, and plumbing. These departments should be utilized for concrete study whenever it can be done.

Hygiene, both personal and public, can be made one of the most interesting subjects in the college curriculum. Is it not true that people are fundamentally interested in health? It has been stated that matters relative to health and physical well-being make up the bulk of the laity's conversation. If this is true why not by education substitute facts for the world of harmful misstatements and prevalent superstition?

Hygiene should be made actively alive. It might well begin with the consideration of timely and interesting topics. For example, if influenza is rampant, begin with that subject. The vital statistics of the particular locality should guide in the introduction of the course in hygiene. In many localities, typhoid fever and tuberculosis, under normal conditions, are the chief destroyers of early manhood and womanhood—the period of college life. Therefore, in those localities particular consideration should be given to these infections, and the related infectious diseases may be studied in connection with them. Thus, season, latitude, prevailing diseases, epidemics, etc., may determine the introduction to a course in college hygiene.

The proportion and relative values of the various topics making up hygiene study may be largely determined by the agencies which are most likely to and do most frequently affect the health. For many reasons the course should start out with, and continual emphasis should be placed on, public health. As President Burton of the University of Minnesota has stated, "The college freshman is more or less fed up on personal hygiene." He has had an over-ingestion of it while at high school and still feels a sense of distention. Again, a student is decidedly socialistic during this period and is more interested in his relations to society than he is in his "innards."

In general, a course including facts of hygiene and sanitation, which it is vital that all citizens should know, may be outlined as follows:

*Bacteria.*—Along with a consideration of the prevailing infectious diseases, the subject of bacteria in general may be introduced—their nature, kinds, distribution, growth; pathogenic bacteria and how they gain entrance into the body; toxins and their effects. Interesting

concrete examples of pathogenic bacteria may be selected from the various infectious diseases. Naturally these studies lead to public hygiene-sanitation. Contamination of water, milk, and food; sewage disposal, etc., are problems of bacterial distribution. Air and other means of contaminations such as carriers, objects, hands, insects, etc., may likewise be considered. Thus the subject of communicable diseases in a general way may be introduced, reserving the more specific effects of contagious disease until the appropriate place for their study in connection with the physiological system is reached.

Man's defense against bacteria may be next introduced: bodily resistance and how maintained; methods of prevention—cleanliness and asepsis, avoidance of crowds, isolation, quarantine, vaccination, air, sunlight, chemicals, sterilization etc.

*Respiratory system.*—As the vast majority of the communicable diseases enter through the respiratory system, the study of this system may well be introduced here. After the essential consideration of the anatomy and functions of the nose, mouth, pharynx, larynx, and lungs, the respiratory infections should be considered. First and foremost, colds; causes and effects, and especially the effect in preparing "soil" for more serious infections; prevention, and here building construction in relation to ventilation, heating, and humidity may be dwelt upon. The subject of colds may be followed by a consideration of diseases spread by discharges from mouth and nose; i. e., chronic coughs, tuberculosis, influenza, pneumonia, diphtheria, septic sore throat, tonsilitis, scarlet fever, measles, mumps, whooping cough, cerebrospinal meningitis, etc. The methods of dissemination of these diseases and the means of preventing them should be duly emphasized.

*Focal infections.*—Teeth-root abscesses and pyorrhea, diseased tonsils, adenoids, infected sinuses, and their far-reaching effects in the causation of constitutional disorders such as endocarditis, arthritis—both acute and chronic—chorea, high blood pressure, lassitude and indisposition, and degenerative diseases, should be dealt with.

A general consideration of the care of the nose, mouth, and throat may now be made. From the above synopsis it will be seen that the subject of the respiratory system and its disorders is indeed lengthy. It is, nevertheless, a most important one. The relative importance of the various diseases should be the guide in presenting them.

*Mental hygiene.*—Of great importance is the subject of mental hygiene. The university represents an abrupt transition in the life of the student. New environment and conditions of living, new associations, and perplexing educational methods are more or less disturbing experiences to many students. They have difficulty in "finding themselves." Again, many students who come to the university have been started off early on the wrong track. The

twig is readily bent in divers ways, and many factors in the earlier life of a student may have brought about a more or less warped condition.

Many types of psychoses, neuroses, and other slight mental aberrations—border-land cases—have their exacerbations or inception during the earlier period of college life. Mental therapeutics—that which endeavors to “put the student right” with himself, his environments, and his activities—should be an important part of the work of genuine hygiene instruction.

Instructors in practically all courses offered in the university could do much to prevent these mental disturbances in students. In the introduction of a new subject, the devotion of a class period or two to a brief consideration of what is to be sought and how best to obtain it, is worth while. Our first step, when manual labor of any sort is to be done, is to figure out the maximum accomplishment to be obtained with the least expenditure of energy. This is recognized as efficiency. Why not apply the same method to mental endeavors? Far too many students in too many courses “butt their heads against a stone wall” in their compelled efforts to move or remove it. An enormous amount of physical and nervous energy is wasted. Would not a preliminary survey wherein the maximum accomplishment with a minimum expenditure of nervous and physical energy is discussed and demonstrated contribute to mental efficiency? It would certainly do much, not only toward minimizing psychoses but also toward stimulating interest. But this should not mean a sugar-coated educational process which would seriously affect what is vaguely termed “mental discipline.” Making a course “difficult,” however, is to be condemned. “Burning the midnight oil” as a routine intellectual endeavor for students should be relegated to the past.

*Circulatory system.*—This subject should include a survey of the anatomy and physiology of the blood organs—arteries, veins, capillaries; further emphasis should be laid on focal infections, i. e., rheumatic fever, endocarditis, etc., and their relations to the heart. The necessity of exercise and the dangers of overstrain should be duly considered. The etiological factors and the prevention of high blood pressure, arteriosclerosis, and cardio-nephritic degenerations should receive the proper emphasis. Emergencies, hemorrhages, and syncope should also be considered.

*Excretory organs.*—A study of the skin, the kidneys, etc., should be made.

*Physical exercise.*—The subject of physical exercise should include a study of the anatomy and physiology of the bones, joints, and muscles, and the physiology of muscular movement. Activity and

muscular exercise in the open air should be emphasized as among the chief measures for maintaining health and as important factors in preventive medicine. There should also be included the reconstruction and prevention of deformities—round shoulders, lateral curvature, humpback, knock-knees, weak and flat feet; the teaching of correct body posture and the development of the various parts and organs of the body; and the cultivation of poise and graceful, coordinate, efficient motion.

*Organs of nutrition.*—The essential survey of the gastrointestinal tract from teeth to colon, including the anatomy and physiology of the various gland appendages should be made. In presenting the anatomy and physiology of the organs and systems, care must be taken not to weary the student with too many details. The salient features of this branch of hygiene are: Care of mouth and teeth; mastication; essential food substances; amount of protein, carbohydrates, and fats essential as measured in calories; overingestion and its relation to degenerative diseases; regulation of meals and diet; proper cooking of foods; preservation of foods; adulteration of foods; drinking water; gastrointestinal disorders—dyspepsia, costiveness, diarrhea, etc. The diseases due to alvine discharges—cholera, dysentery, hookworm, and especially typhoid fever—should be given much attention and the public health phases emphasized. Also, a study should be made of the nutritional diseases—pellagra, scurvy, beriberi, and rickets.

*Sex hygiene.*—This important part of the study of hygiene may be presented early in the course, if deemed appropriate. Perhaps no subject pertaining to personal welfare has received more attention in recent years. Perhaps no subject has been more fatuously handled. At times one is almost constrained to feel that as much perversion has been manifested in its usual presentation as that toward which it is directed. The practice of engaging high-priced itinerant lecturers to come around once a year and present the subject to a large audience is to be condemned. An abnormal curiosity rather than a genuine helpful interest is fostered and this curiosity is the motive for attendance. Again, these meetings are arranged to serve the convenience of the lecturer. Necessarily, an abrupt, more or less sensational introduction to this all-important subject, where both modesty and time forbid a wholesome discussion, is the deplorable result.

For many reasons sex hygiene should be correlated with general hygiene instruction, and should be presented at the appropriate period by the regular instructor after he has become acquainted with his students and they have become acquainted with his sincerity and earnestness. It should include a brief consideration of genesis; anatomy, physiology, and care of sexual organs; social

diseases—in relation to the individual, to society, and their economic loss; heredity, and eugenics.

*Clothing.*—There should be considered the relation of clothing to health; the kinds of clothing; the need of proper clothing, both under and outer, in winter for conservation of heat and energy; warm-weather clothing, etc.

*Cancer.*—Cancer ranks with tuberculosis and pneumonia as a great causative factor in our national mortality. The subject, therefore, is of both profound personal and public interest. Its cause, so far as we know, and its prevention and early treatment should be given due consideration.

*Domestic and public hygiene.*—Study should be made of the location and construction of dwellings; provisions for light, heat, ventilation, and humidity; dust in air; water supply; plumbing; drainage; modern bathrooms and toilet rooms; garbage and refuse disposal; nuisances. These subdivisions may be extended to include certain municipal matters; water—sources, contamination, purification, and relation to disease; soil in its relation to disease; sewage and refuse disposal; school and other public buildings; industrial hygiene; communicable diseases not already considered, i. e., smallpox, chicken pox, etc., emphasizing them from the public standpoint with special reference to quarantine, isolation, disinfection, and immunity; patent medicines.

## 2. PUBLICATIONS.

The students' daily paper and other university publications may be utilized for the purpose of disseminating knowledge relative to both personal and public hygiene. The effects of daily succinct discussions on timely hygiene topics are far reaching.

## 3. EXHIBITS.

Every opportunity should be taken to set forth information relative to disease, patent medicines, etc., by means of exhibits, placards, drawings, and moving pictures, so that "he who runs may read." The waiting room at the health service and other convenient rooms should be made use of for placards.

There are practically no limits to the educational work of the health service.

## PERSONNEL OF A UNIVERSITY HEALTH SERVICE.

The personnel of a university health service will vary greatly, of course, in different institutions.

### Personal Division.

*Director.*—At the head of the university health service there should be a director—a man of splendid personality, wide vision, broad sympathies, and unusual training. He must appreciate fully the scope of his work and the relative values of the various activities under his supervision. As his chief aim is concerned with the maintenance of an active, healthy, vigorous, working student body, he must be familiar with both preventive and curative medicine. Further, he should understand the theories and practices now incorporated and taught in the department of physical education, for, and it will stand reiteration, proper daily physical exercise is one of the best preventives of disease in the student's life; and by properly directed exercise many physical defects can be ameliorated and in some cases entirely overcome.

Assisting the director there should be physicians, nurses, and a laboratory technician familiar with bacteriology and medical laboratory diagnosis.

*Physicians.*—The personnel of a university health service should include one or more physicians, depending on the size of the institution. Perhaps 1 physician for each 1,000 students would be a good allotment in general. Women physicians are desirable for women students, especially in making the physical examination and for reconstruction work.

The physicians employed should be especially qualified for their work. In addition to ample training in both preventive and curative medicine, they should be familiar with the theories and practices of physical education. Especially should they be acquainted with the various methods of physical reconstruction and the reclamation of subnormal students. The physician should become acquainted with the physical status of each student in his group. With such knowledge he can provide the proper measures for maintaining the health of the sound student and group his subnormals into various classes for which suitable exercise and care can be arranged. He should use the "follow up" system, and a complete physical record should be kept of the student throughout his academic career.

Thus it will be seen that the health service and physical education are interrelated. In fact these physicians may well be employed by both departments where these departments are separated.

Of course, where no medical school exists in connection with the institution, these physicians must necessarily keep daily hours at the hospital and dispensary where students may consult them. Where there is a medical school the treatment of ill students may well be taken care of in another way. This matter is discussed in



Miscellaneous Problems, under the heading, "Relation between medical school and students' health service."

*Nurses.*—The importance of a sufficient number of competent nurses in the health service can not be overemphasized. Nurses' activities are divided as follows: Hospital nursing; attendance in the dispensary; visiting outside sick students; inspecting rooming houses, etc. The number of nurses required for an effective health service varies with the size of the institution and the particular demands. At least two full-time nurses, one serving as superintendent, should be employed. Increase in the nursing staff should be made to meet the demands. In case of epidemics and during certain seasons extra ones are often needed.

*Laboratory technician.*—Finally, it is essential that someone well trained and skilled in laboratory technique and diagnosis be employed. The technician's activities are related chiefly to two branches of the service: the personal division, in the various laboratory examinations, and the division of sanitation. In fact the right type of individual with the necessary training may well direct the division of sanitation.

#### Division of Sanitation.

To carry on the activities as outlined, for the division of sanitation, the following should be appointed: A chief of the division of sanitation; inspectors of sanitation (one or more as the needs demand); voluntary health officers for campus buildings (see p. 2496); and voluntary health officers for sororities, fraternities, clubs, boarding houses and rooming houses (see p. 2501). As has been suggested, the work of the three divisions—personal, sanitation, and educational—overlap, and one properly trained individual may serve in several capacities, especially in the health services of small institutions. For example, the chief of the division of sanitation may serve as sanitary inspector and laboratory technician. A number of such combinations can be made with properly trained individuals.

#### Division of Education.

The course in hygiene may be conducted by practically any number of the staff of the health service. Special ones may be delegated for the particular parts of the educational work.

#### BUILDING AND EQUIPMENT.

For the successful administration of a university health service a suitable building, conveniently located, should be provided and used solely for the health service work. The three divisions are so interrelated in their activities that one distinctive building unit should house them all.

Adequate provision for the personal division requires:

- (1) A dispensary with a waiting room and examination and treatment rooms;

(2) A hospital for noncontagious cases (including nurses' quarters, unless these are otherwise arranged for);

(3) Adequately isolated quarters for contagious diseases (these quarters should be either in a well-isolated part of the building, or better, in a separate building, or in a wing connected with the main building by inclosed corridor);

(4) A well equipped laboratory which can be utilized in the work of both the personal division and division of sanitation;

(5) Necessary office space.

It has been the writer's experience that, for an efficient health service, provisions should be made for hospital facilities of at least 5 beds and a daily average of 20 dispensary visits for each 1,000 students enrolled. These figures are given as the minimum requirements. Of course the daily sick call and the number of patients are influenced by the seasons and the presence of epidemics. Consequently the hospital and dispensary equipment must be elastic. At times, as during the height of epidemics, every resource will be strained in order to care for all those afflicted.

The laboratory is of great importance. It makes possible the early detection of communicable diseases and provides a place for the routine analyses essential to thorough physical examinations. Preventive vaccinations for typhoid fever, pneumonia, smallpox, diphtheria, etc., may be given and autogenous vaccines prepared. Further, it is essential in the work of the sanitary division for the examination of drinking water, milk, water of swimming pools, etc.

A hospital, including an isolation hospital for the more serious communicable diseases, a dispensary, and a laboratory are absolutely indispensable to an efficient university health service.

To initiate a health service, temporary buildings can, of course, be utilized until permanent accommodations are provided. One building could serve as a place for making physical examinations, for the early diagnosing and treating of minor illness among students, and for taking care of bed patients, when noncontagious. It could also serve as the health center of the university in which the administration of the divisions of sanitation and education is carried on. Another building could serve for isolation purposes.

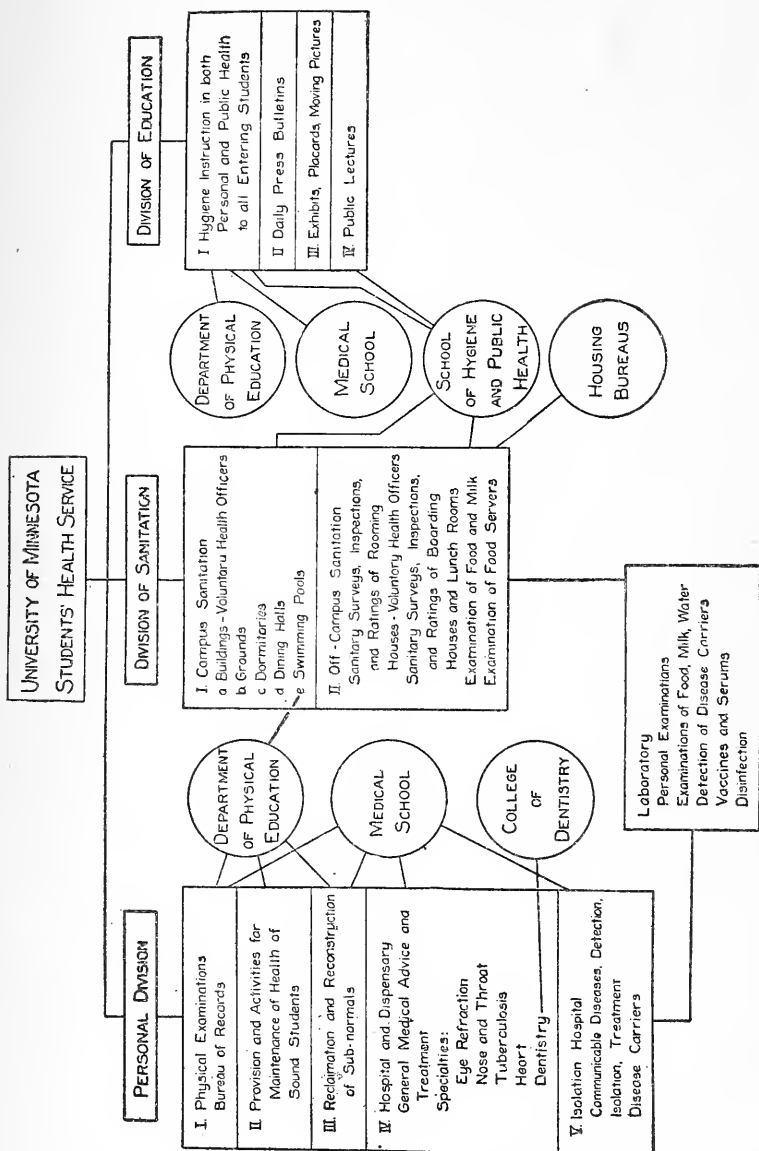
#### MISCELLANEOUS PROBLEMS.

Many problems come up with the initiation, organization, and operation of a students' health service. A brief statement regarding some of the most important of these problems which have been repeatedly called to our attention may be of interest. For the smaller institutions perhaps the writer's previous discussions on this subject may be of some value.<sup>1</sup>

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<sup>1</sup> "The university health fee," *The Journal of the Kansas Medical Society*, October, 1915. "Organization and activities of a university health service," *School and Society*, Sept. 2, 1916.

Reference has already been made to the inextricable relationship between the health service and the department of physical education in the university. A close relationship should exist also between the health service and the schools of medicine, and of hygiene and



Plan of organization of the students' health service at the University of Minnesota. Circles show the relation of other departments to the health service.

public health, if these schools are maintained by the institution. The health service must also be in close touch with the housing bureau and with various student organizations.

1. *Relation between the health service and the department of physical education.*—To repeat, the university health service is as much

concerned with the physical welfare of the sound student as it is with the sick. It must be actively interested in the provisions for the maintenance of the health of all students. This makes a close relationship between the service and the department of physical education essential. A specially trained physician, devoting all his time to student health and physical education, should be employed. Not only should he be well trained in medicine but he should have an intimate knowledge of both the theory and practice of kinesiology, calisthenics, outdoor and indoor physical education. He should be familiar with reconstructive and corrective exercises. This physician is a most important member of a students' health service. He must become familiar with the physical records of all the students in his group. It is his concern to keep the sound student well, and to look out for the physical welfare and exercise of the subnormals. He is the teacher of hygiene to incoming students. His work constitutes a continuous "follow-up system," whereby one of the greatest objectives of students' health service is reached—that of helping the student to possess a better developed and a sounder physique at the conclusion of his college career than he had at the time of his entrance.

2. *Relation between medical school and students' health service.*—Let me again emphasize the fact that a university health service should not be regarded solely as a sickness insurance agency. The most serious mistake that many institutions have made in establishing health services is to regard them as contract practice procedures and to expend all income from health fees on facilities for medical treatment and for the employment of physicians who are concerned only with curative medicine. As a result, in these institutions, only a dispensary and hospital are provided and a practicing physician is engaged. This is not a university health service. Such an activity deals with perhaps not more than 5 per cent of the students. As has been stated before, a real health service should be as much interested in the 95 per cent who do not feel the necessity of consulting a physician as with the 5 per cent who do. It should be primarily interested in preventive medicine, and must be actively associated with all agencies in the university engaged in the physical welfare of students.

From a study of the aims and functions of a students' health service it can readily be seen that it can not well be made an integral part of a medical school, but should be a separate unit in the university. The larger functions of a health service are entirely independent of those of the medical school. The medical school would not wish to concern itself with these activities, nor could it be expected to do so. It would take up too much time and would interfere with medical instruction, which is primarily the teaching of diagnosis and treatment.

However, in the personal division of its activities, especially in the treatment of ill students, the health service should have the close cooperation of the medical school, if a medical school is maintained by the institution concerned. Here the medical school touches the health service in a most vital spot. The curative medical branch of a students' health service, while only a part of its work, is, nevertheless, an important and most costly one. The health service must give its ill students and those in need of treatment the most scientific advice and care; therefore the health service should have a close relationship with the school of medicine, if such a school is maintained. Certainly the clinical staff of the medical school should be available when expert or special treatment is needed. Likewise the closest affiliation might well exist between the nursing activities of the school and the service. Student nurses might well take a part of their training with the health service.

Thus for many reasons are the services of the medical staff highly desirable. The greatest value is in the excellence of the service, for the highest grade will thus be available. Again, if the health service is compelled to go elsewhere for its expert service, much of its income would be expended for curative medicine, and consequently its other far-reaching activities would have to be neglected or reduced.

It has been our experience that the clinical staff of the medical school is willing to cooperate in every way with the health service. The reasons for this willingness and interest are found in the desire to be of the greatest service to the university as a whole, and in that characteristic humanitarianism of the higher types of medical men, manifested by their desire to do all they can in behalf of human welfare.

In connection with this cooperation the question will come up, "Should treatment be confined to the dispensary and hospitals of the school of medicine?" There are several serious objections to this arrangement.

(a) The student does not want to mingle with the average dispensary patient. He is not and does not wish to feel that he is a charity patient. He has not the time to wait his turn in the almost endless row of ambulatory patients. He has paid a health fee and consequently feels entitled to service in a different environment from that provided for charity patients.

(b) Students can not be placed in wards along with the usual type of charity patients.

(c) When students are sent to the hospital of the medical school, rumors are sometimes started that they are to be used for clinical teaching. While such clinical teaching would in no way diminish the efficacy of treatment, but rather enhance it, nevertheless, rumors of this kind have been found to work materially against both the initiation and the activities of a health service.

(d) Again, students want all the privacy possible, and this should be given them. They do not want the medical students to treat them, because they are intimately associated with the medical students in so many activities.

(e) To send students to the medical school's dispensary and hospital would only diminish the teaching facilities, which are, after all, the primary objects of the work carried on in these buildings.

For the best results the dispensary and hospital facilities of the health service and medical school should be independent. When it comes to exceptional treatment, however, which requires special and costly apparatus for both diagnostic and therapeutic purposes, duplication of such equipment should be avoided.

The medical school should be compensated for this work. Of the various means of remuneration, the following plan should prove to be mutually beneficial:

Let the health service establish and maintain three graduate fellowships in the school of medicine—one in the department of medicine, one in surgery, and one in the eye, ear, nose, and throat department. These fellowships should be open to graduates of recognized medical schools who have had general internships and are specializing in these departments. The health service would need the services of each fellow not to exceed two hours per day; while the rest of his time could be devoted to his special department.

The advantage to the health service from such an arrangement would be that the personnel and facilities of these departments would be available for both special and expert treatment. In surgery, for example, the health service could feel assured that any surgical cases among students would receive the most scientific treatment, for the head of the department of surgery, through his graduate fellow, would be responsible for the surgical cases referred to him by the university health service.

The advantage of such an arrangement to each department would be that the department would have a graduate fellow concerned primarily in research. This always adds to the rank and dignity of a department and school, and, generally, clinical departments are in need of such research workers.

3. *Relation of the health service to the school of hygiene and public health.*—Where a school of hygiene and public health is maintained by the university, cooperation should exist between it and the health service. Practically the entire division of sanitation could be administered in connection with a school of hygiene and public health. Campus sanitation, including buildings, etc., and off-campus sanitation—sanitation in rooming and boarding houses—offer unlimited opportunities for practical public-health teaching. In other words, the division of sanitation may amply serve as a laboratory for instruction in hygiene and sanitation.

4. *Relation of health service to other university activities.*—In most universities there are many established agencies concerned with the welfare of the students. There is usually a dean of men and a dean of women who are concerned with the moral and social welfare of students. Then there are the housing bureau and the various organizations, such as the Y. M. C. A., Y. W. C. A., etc. The activities of the health service will in many instances parallel and even duplicate some of the activities of these other agencies. However, a students' health service covers such a large field that there is room for all who are interested in the work. When there is an apparent duplication or overlapping of interests, cooperation should be arranged.

5. *Relation to the medical profession.*—Naturally there are many students who, although they have paid the health fee, prefer, when ill, the services of their family physician or a physician of their own choice. The facilities of both the hospital and dispensary should be open to reputable physicians. They should be made to feel that the health service is anxious to cooperate with them in providing the best treatment for the students. When the outside physician learns of the excellent facilities offered by the health service for treatment, he desires the closest cooperation with that service.

Physicians located in the same city as the university sometimes criticise and offer objections to the establishment of a health service. Especially is this true where the locality is small. On the face of it, these physicians regard a health service as being solely concerned with contract practice and as a consequence feel that they will be deprived of some practice.

No genuine physician will object when the real purpose of a health service is understood. Again, the fact of the matter is that his practice is not decreased but on the other hand increased. Probably not more than 5 per cent of students ordinarily consult the medical profession. The physician is called as a rule only in case of serious illness. The university health service will deal with 100 per cent of the students and, as a consequence of its many activities, students will be impressed with the importance of preventive measures for maintaining positive health. Naturally, physicians will be consulted more than ever. This statement has been vouched for by the medical profession of at least one locality in which a university health service was established.

Cooperation and not competition is the desired relationship of the health service to the medical profession.

6. *Sectarian contravention.*—The opposition of Christian Science and perhaps other denominations and sects—religious or otherwise—to the tenets and practices of modern scientific medicine must be squarely met. If the health activities are confined solely to dispensary and hospital curative treatment, naturally objections will be

made by these cults to the requirement of health fees and the initiation of health services. However, when the scope and activities of a genuine students' health service are explained to objectors of this class, little opposition is encountered. Assuredly no one can object when it is understood that treatment of ill students is only an incident in the activities of a true health service and that the university is primarily concerned with positive health. By providing for the physical welfare and proper development of the students, by protecting them from the numerous communicable diseases that annually creep into the university, by stimulating them to aspire and labor for healthy, active, and harmoniously developed bodies, all students in the university are served. Treatment of ill or subnormal students in general, and special isolation and treatment of communicable diseases, become necessary in order that the vigorous may be protected and the academic efficiency of the university increased.

7. *Required health fee.*—An obligatory health fee is as essential for the maintenance of genuine health service as are taxes for the support of municipal or State health activities. These activities can not exist on voluntary contributions. Under no circumstances should exceptions be made to the payment of this fee. To make exceptions will undermine the entire fabric of health conservation and the health service will collapse. Some ground for exception might be held were the university engaged solely in contract practice. When objectors are made aware of the true functions of a genuine students' health service, their objections are usually overcome.

The writer feels that it is the best policy not to overemphasize the term "health fee." It is preferable to include it with the other essential fees required of students under the term "general fees," then make the proper apportionment. Not that it is best to be in any way clandestine, but, rather, it is best not to emphasize this particular fee which is so essential to the welfare of a university and its students, and which is so much misinterpreted and misunderstood. Similar objections might be raised by many to other required fees, were the fees particularly pointed out and overemphasized.

8. *Extent of individual service.*—Just how much service should be given an individual student is a problem difficult to solve. In reading the rules and regulations of health services in different institutions one observes many variations. Some institutions stipulate two weeks of hospital care as the maximum free service. Others require students to pay extra for outside calls. Of course the amount of the health fee required and the availableness of special and expert medical attention are important factors in determining this question.

In initiating a health service it is not wise to define the limits of individual service. Few chronic cases are to be found among students and it is rather a rare exception for a student to remain in the



hospital for more than two weeks. It is well when possible, in my opinion, to proceed on the theory that every service needed by an individual student will be rendered. Where close affiliation exists with a medical school, this service can be readily given.

The stipulation then of a maximum of individual service must be determined by experience, and it is a problem that must be solved locally. I feel, however, that it is only just to require the payment of hospital fees. A student must pay for his board and laundry outside of the hospital; so why should he not pay for them when he is in it? Individual exceptions may be made where a student is entirely dependent upon his own resources. It is only equitable, as I view it, that the hospital receive this remuneration while the student is "boarding" with the hospital. A hospital fee of \$1 a day for occupants would certainly be both moderate and just. In the course of a year the items of food, laundry, etc., for hospital patients, become very important ones, and they should be met as nearly as possible by hospital fees. It is only just to that large number of students who never enter the hospital; for the amount saved by charging such a hospital fee can be utilized for health activities which concern the sound student as well.

9. *Relation of health service to general academic efficiency.*—The health service is of incalculable value in contributing to the general academic efficiency in the university. For example, a vast majority of the daily absences are reported as due to illness. Sickness is a relative term, and is the most available excuse for our delinquencies. Suppose a system of reporting of absences is devised by which the health service sends one of its representatives to the sick absentee. This would not only aid in prompt attention to all ill students and in the early detection of communicable diseases, but if such an arrangement existed, the "sick" absent list would be materially decreased.

#### SUMMARY.

1. *Aims.*—The university health service endeavors to be a most potent factor in reducing to the very minimum that large annual academic and economic loss which is due to the indisposition and illness of students. Further, its aim is to help each student entering the university to possess a healthy, vigorous, active, and harmoniously developed body. The university health service stands for Positive Health.

2. *Activities.*—There are three main divisions to its activities: (a) Personal attention, (b) Sanitation, and (c) Education.

(a) The Personal Division is concerned with the physical examination of all students. Complete physical records should be kept. From each record can be determined, in a large measure, just what procedure is necessary to keep the student in the best physical con-



dition during his academic life. The following branches of the work in the personal division:

(i) Provisions for maintaining the health of the normal, healthy student by means of proper exercises, etc.;

(ii) Protection of the physically sound student from communicable diseases that are constantly creeping into the university, by the early detection and isolation of all cases of communicable disease—tuberculosis, typhoid fever, smallpox, scarlet fever, mumps, measles, etc.;

(iii) Provisions for the care and treatment of all such cases of communicable diseases;

(iv) Reconstruction—Reclamation: Correction of defects, advice and treatment to all subnormals;

(v) Advice to and treatment of all ill students.

(b) Division of Sanitation: The students' environment must be made as hygienic as possible; hence this division concerns itself with the sanitary conditions affecting the student both on and off the campus.

(c) Education: Finally, every student in the university must be made familiar with the elements of personal and public hygiene. Education in these important matters is carried on by means of courses in these subjects, daily bulletins, exhibits, and lectures.

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